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EXAMINER	
ISOM, JOHN W	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,380	BUESGEN ET AL.	
	Examiner	Art Unit	
	John Isom	2447	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21,23-27,31-33 and 38-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21,23-27,31-33 and 38-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In the amendment received 08/17/2010 (the "amendment"), Applicant has amended claims 21, 23, 31, 32 and 41; and cancelled claim 22.

Claims 21, 23-27, 31-33 and 38-42 are pending.

Response to Arguments

2. Applicant's arguments in the request, with regard to the rejection of claims 21-27 and 33 under 35 U.S.C. 103(a) as being unpatentable over Allon et al. (US Pat. No. 5539883) ("Allon") in view of King et al. (US Pub. No. 20040162945) ("King"), have been fully considered but they are not persuasive, for the following reasons:

In the amendment, Applicant argues that the claims at issue are patentable over the cited references, for one or more of at least the following reasons:

(A) "none of the cited art, alone or in combination, includes [the] feature of having each device identify and then store the order of devices therein so that upon replacing a device in the network, the replacement device can receive from a neighboring device the order of devices to allow reconstruction of the network on a decentralized basis [as in claim 21], nor is there any suggestion to add such a feature to the cited art" (page 4 ¶ 6 – page 5 ¶ 1), because

(1) "Allon [does not describe] identifying by each device based on hierarchies of connections the order of devices and distributively storing the order of devices" and

(2) King [does not describe] the full order of devices as determined in the present claim [21]" (page 4 ¶ 5); and

(B) "Nothing in Allon, King, or Root describes distributively storing the order of devices (previously identified by each device based on hierarchies of connections for each node) in the devices themselves and then using this stored information to ascertain direct and indirect relationships between the devices determinative of the relative spatial arrangements among the devices [as in claim 41]" (page 5 ¶¶ 5 and 3).

In response, the examiner respectfully traverses, and offers the following evidence and argument in support of the traversal:

The claims at issue are unpatentable over the cited references, because the cited references teach all of the limitations of claims 21 and 41, because:

(A) King teaches "(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections; and (iii) storing the order of devices in the corresponding device" as in claims 21 and 41;

(B) the claims do not recite a "full order of devices"; and

(C) the recitation "such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network

has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices determinative of the relative spatial arrangements among the devices", in claim 41, does not limit the claim; and Allon teaches this recitation.

Each of these reasons is individually considered under a corresponding header as follows.

(A) King teaches "(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections; and (iii) storing the order of devices in the corresponding device" as in claims 21 and 41

King discloses that, in an apparatus including a hierarchy of field replaceable units (FRUs), each FRU in the hierarchy may have a number of subsidiary FRUs, each of a particular type. A FRU includes stored FRU identity data, relating to or describing the FRU itself, and subsidiary FRU data that is indicative of at least the number and type of any subsidiary FRUs that may be immediately below the in the hierarchy. The apparatus is operable to provide a consolidated version of the FRU identity data and subsidiary FRU data stored by the various FRUs in the hierarchy (Figure 6; [0008]). For example, in a system 10, a chassis 15 receives 910 an initial request from a service

processor for consolidated FRU data, and forwards 940 the request to each of its subsidiary FRUs including blades 40 (Figure 10; [0108]), which in turn forwards 940 the request for FRU data to its subsidiary FRUs disk unit 515 and RAM 540, each of which responsively returns 960 its FRU data 710 to the blades 40 ([0110]), which in turn returns 960 to chassis 15 the blades' consolidated FRU data 710 which comprises not only the FRU data 710 stored within blade 40 itself but also the FRU data 710 just received 950 from its subsidiary FRUs disk unit 515 and RAM 40 ([0111]). For blade 40 the FRU history information is kept in an EEPROM 518. The FRU history for RAM 540 is stored in SEEPROM 542, while for disk unit 515 the FRU history is handled by disk controller 513 (Figure 5; [0072]).

In this disclosure of King, each of the *subsidiary FRUs including blades* and *subsidiary FRUs disk unit and RAM*, teaches the "devices". The *consolidated FRU data*, teaches "the order of devices". Each of the *chassis* and *blades* teaches "the corresponding device's associated node". The disclosure that the *chassis forwards the request for consolidated FRU data to each of its subsidiary FRUs including blades which in turn forwards the request for FRU data to its subsidiary FRUs disk unit and RAM*, teaches "for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection". The disclosure that the *chassis receives the consolidated FRU data from blades as well as the FRU data from PSUs and SSCs which represents the complete set of FRU data for the system*, teaches "ascertaining, for the corresponding device's

associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections". Each of the two disclosures that (1) *for blade the FRU history information is kept in an EEPROM*, and (2) *the FRU history for RAM is stored in SEEPROM while for disk unit the FRU history is handled by disk controller*, teaches "storing the order of devices in the corresponding device".

Thus, King teaches "(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections; and (iii) storing the order of devices in the corresponding device".

(B) The claims do not recite a "full order of devices"

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that features upon which applicant relies (i.e., a "full order of devices") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are

not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(C) The recitation "such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices determinative of the relative spatial arrangements among the devices", in claim 41, does not limit the claim; and Allon teaches this recitation

In the 19th through 22nd lines of claim 41, each of the phrases "such that" and "enabling", causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 41. See MPEP §§ 2106(II)(C), 2111.04 (citing *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005) (quoting *Minton v. Nat 'l Ass 'n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003))). Therefore, the recitation "such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices

determinative of the relative spatial arrangements among the devices", in claim 41, does not limit the claim.

Furthermore, Allon teaches this recitation. Specifically, Allon discloses that each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). The information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). Each computer is logically linked to one computer of lower rank and a number of computers of higher rank to form the tree structure (column 4, lines 42-47). In this disclosure of Allon, the disclosure that *each computer is logically linked to one computer of lower rank and a number of computers of higher rank to form the tree structure*, teaches "the order of devices correspondingly for each device in the network in accordance with (i) - (iii)". The disclosure that *each of the computers comprises a means for storing information which may be a recording medium*, teaches "each device in the network". The two disclosures that (1) *the information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received*, and (2) *each computer is logically linked to one computer of*

lower rank and a number of computers of higher rank to form the tree structure, together teach each of "each device in the network has distributively stored therein the order of devices" and "direct and indirect relationships between the devices". This teaching "enabl[es] each device to ascertain direct and indirect relationships between the devices". Thus, Allon teaches "such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices".

Conclusion

It is shown above that—

(A) King teaches "(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections; and (iii) storing the order of devices in the corresponding device" as in claims 21 and 41;

(B) the claims do not recite a "full order of devices"; and

(C) the recitation "such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain

direct and indirect relationships between the devices determinative of the relative spatial arrangements among the devices", in claim 41, does not limit the claim; and Allon teaches this recitation.

For these reasons, and those given below, the examiner concludes that the cited references teach all of the limitations of claims 21 and 41. Therefore, the claims at issue are unpatentable over the cited references. Accordingly, the instant rejection is continued below.

Claim Objections

3. Claims 21, 23 and 41 are objected to because of the following informalities:

- Please amend the 4th through 7th lines of claim 21 as follows: "when replacing a device, the method comprising:".
- In the 9th and 10th lines of claim 21, the phrase "to establish" causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 21. See MPEP §§ 2106(II)(C), 2111.04 (citing *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005) (quoting *Minton v. Nat 'l Ass 'n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003))).

- In the 18th through 21st lines of claim 21, each of the phrases "such that" and "enabling", causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 21. Id.
- In the 31st and 32nd lines of claim 21, the term "thereby" causes the language that follows it not to limit the claim, because the term suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 21. Id.
- In claim 23, the term "enables" causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 23. Id.
- In the 7th and 8th lines of claim 41, the phrase "which establishes" causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given

weight because it simply expresses an intended result of the preceding process steps positively recited in claim 41. Id.

- In the 19th through 22nd lines of claim 41, each of the phrases "such that" and "enabling", causes the language that follows it not to limit the claim, because the phrase suggests or makes optional but does not require steps to be performed or does not limit the claim to a particular structure. Furthermore, the language is not given weight because it simply expresses an intended result of the preceding process steps positively recited in claim 41. Id.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims **21, 23-27 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Allon et al.** (US Pat. No. 5539883) ("Allon") in view of **King, et al.** (US Pub. No. 20040162945) ("King").

With regard to claim **21**, Allon teaches: In an automation network comprising a plurality of nodes, each node comprising one or more connections to connect each

node to one or more devices and one or more other nodes, a method for reconstruction of the network on a decentralized basis when replacing a device comprising:

(a) identifying, by each device in the network in a distributed manner, an order of devices in the network to establish a relationship based on predefined hierarchies of connections for each node

(i.e., computers in a network are logically linked in a hierarchical tree structure (Figure 2A-C; column 4, lines 16-31). Each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). The information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). Each computer performs steps to build the tree (column 7, lines 28-29). Logical links are generated between the computer and other computers in the network so that a tree structure is formed, the computer being logically linked to one computer higher up the tree and a number of computers lower down the tree (Abstract). The generation of the logical links can be achieved by assigning a rank to each computer, no two computers being assigned the same rank, each computer being logically linked to one computer of lower rank and a number of computers of higher rank to form the tree structure (column 4, lines 42-47)),

comprising, correspondingly for each device in the network:

(i) identifying a corresponding device's associated node

(i.e., each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). Each computer periodically sends an update_up message to its parent and waits for an update_down message (Figures 3A-C; column 8, lines 40-42). If an update_up message arrives from a child, the node responds with an update_down message (column 8, lines 46-47)).

Allon does not disclose, but King teaches:

(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections

(i.e., in an apparatus including a hierarchy of field replaceable units (FRUs), each FRU in the hierarchy may have a number of subsidiary FRUs, each of a particular type. A FRU includes stored FRU identity data, relating to or describing the FRU itself, and subsidiary FRU data that is indicative of at least the number and type of any subsidiary FRUs that may be immediately below the in the hierarchy. The apparatus is operable to provide a consolidated version of the FRU identity data and subsidiary FRU data stored by the various FRUs in the hierarchy (Figure 6; [0008]). For example, in a system 10, a chassis 15 receives

910 an initial request from a service processor for consolidated FRU data, and forwards 940 the request to each of its subsidiary FRUs including blades 40 (Figure 10; [0108]), which in turn forwards 940 the request for FRU data to its subsidiary FRUs disk unit 515 and RAM 540, each of which responsively returns 960 its FRU data 710 to the blades 40 ([0110]), which in turn returns 960 to chassis 15 the blades' consolidated FRU data 710 which comprises not only the FRU data 710 stored within blade 40 itself but also the FRU data 710 just received 950 from its subsidiary FRUs disk unit 515 and RAM 40 ([0111]). Chassis 15 now receives the consolidated FRU 710 data from blades 40, and well as the FRU data 710 from PSUs 51 and SSCs 52. This represents the complete set of FRU data for the system 10, which can then be returned to the service processor (step 960) in response to the original request ([0112]));

and

(iii) storing the order of devices in the corresponding device

(i.e., for blade 40 the FRU history information is kept in an EEPROM 518. The FRU history for RAM 540 is stored in SEEPROM 542, while for disk unit 515 the FRU history is handled by disk controller 513 (Figure 5; [0072])).

Based on Allon in view of King, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of King with the claimed subject matter as taught by Allon, in order to help to isolate a fault in the apparatus (King at [0009]).

Allon further teaches:

such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices

(i.e., each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). The information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). Each computer is logically linked to one computer of lower rank and a number of computers of higher rank to form the tree structure (column 4, lines 42-47));

(b) upon replacing a first device with a replacement device by connecting the replacement device to a first node in place of the first device, identifying, by the replacement device, its associated node

(i.e., in the hierarchical tree structure, a dead node is detected, and a new node is added, because nodes fail (column 8, lines 34-39). When a computer is added to the network, the computer looks for a parent computer (column 8, lines 54-55; column 7, lines 1-6). Each node receives information from the nodes to which it is linked in the tree

structure. Information on nodes in another sub-tree can reach any node (column 10, lines 25-34))

and which of the other devices is a neighbor of the replacement device

(i.e., each node receives information from the nodes to which it is linked in the tree structure. Information on nodes in another sub-tree can reach any node (column 10, lines 25-34)).

Allon does not disclose, but King further teaches:

(c) receiving, by the replacement device, locally from the neighbor of the replacement device, the stored order of devices, thereby allowing reconstruction of the network on a decentralized basis using the stored order of devices received from the neighbor

(i.e., the FRU tree may be built or updated in response to the addition or removal of a FRU to/from the system. The branch of the FRU tree that has changed is updated ([0115])).

With regard to claim **23**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein the stored order of devices enables each device to determine which of the other devices is an upstream neighbor and which of the other devices is a downstream neighbor

(i.e., the information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular

computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). The network tree building process is executed by each node in the network to determine its place in the network as a downstream or upstream node (col. 7 lines 1-18)).

Therefore, the limitations of claim 23 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

With regard to claim **24**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein each step of the method is repeated periodically

(i.e., the periodic distribution of the network tree information across the network, is used by each node to determine its placement in the network as well as the placement and status of all other nodes in the network, col. 4 lines 15-31, col. 5 lines 12-21 and lines 62-67).

Therefore, the limitations of claim 24 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

With regard to claim **25**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein the recited steps are repeated whenever any one of said other devices is no longer connected to the network

(i.e., the network tree maintenance process takes place to recognize dead or new nodes on the network, col. 8 lines 35-59).

Therefore, the limitations of claim 25 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

With regard to claim **26**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein the recited steps are repeated whenever a new device is connected to the network

(i.e., the network tree maintenance process takes place to recognize dead or new nodes on the network, col. 8 lines 35-59).

Therefore, the limitations of claim 26 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

With regard to claim **27**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein the recited steps are repeated whenever any one of said other devices is replaced by a new device

(i.e., the network tree maintenance process takes place to recognize dead or new nodes on the network as well as replacing and rebooting a node, col. 8 lines 21-26 and 35-59).

Therefore, the limitations of claim 27 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

With regard to claim **33**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon further teaches:

wherein the method is executed by a computer program product (column 16, lines 46-48).

Therefore, the limitations of claim 33 are rejected in the analysis of claim 21, and the claim is rejected on that basis.

6. Claims **31, 32 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Allon in view of King, and further in view of **Liu et al.** (U.S. Pat. No. 6574664) ("Liu").

With regard to claim **31**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon in view of King does not disclose, but Liu teaches:

wherein determining which of the number of connections are still occupied and connected to other nodes and other devices is performed with MAC addresses (i.e., a discovery procedure utilizes MAC addresses to discover nodes or devices connected to one another on a network (column 2, lines 23-34)).

Based on Allon in view of King and further in view of Liu, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was

made, to combine the teaching of Liu with the claimed subject matter as taught by Allon in view of King, in order to provide IP and MAC addresses of devices on a network, to application programs (Liu at column 2, lines 35-45).

With regard to claim **32**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon in view of King does not disclose, but Liu teaches:

wherein the step of identifying the order of devices to establish a relationship includes determining IP addresses of the other devices

(i.e., a local IP address procedure discovers IP addresses of devices on a local network, and stores the IP addresses (column 2, lines 23-51)).

Based on Allon in view of King and further in view of Liu, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Liu with the claimed subject matter as taught by Allon in view of King, in order to perform more complex operations with devices on the network (Liu at column 2, lines 1-12, and column 1, lines 33-47).

With regard to claim **39**, Allon in view of King teaches: The method according to claim 21 (see discussion above). Allon in view of King does not disclose, but Liu teaches:

wherein the network is an Ethernet containing personal computers or peripherals as devices

(i.e., the network can utilize any type of network topology, and preferably Ethernet (column 3, lines 33-53)).

Based on Allon in view of King and further in view of Liu, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Liu with the claimed subject matter as taught by Allon in view of King, in order to have a network composed of a large number of addressable devices (Liu at column 3, lines 54-56).

7. Claim **38** is rejected under 35 U.S.C. 103(a) as being unpatentable over Allon in view of King, and further in view of **Talagala et al.** (U.S. Pub. No. 20020162075) ("Talagala").

With regard to claim **38**, Allon in view of King teaches: The method according to claim 21 (see discussion above). King further teaches:

applied to an automation system containing controls
(i.e., a switching and service controller (SSC) 52 ([0042])),
operator units
(i.e., a user may run a configuration or set-up utility program on a service processor ([0115]) of the SSC ([0045])),
drives
(515 in Figure 6)
as the devices.

Allon in view of King does not disclose, but Talagala teaches:

actuators as the devices

(i.e., a typical integrated disk controller may control the actuator and other internal components of a disk drive when writing data to or reading data from the disk ([0042])).

Based on Allon in view of King and further in view of Talagala, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Talagala with the claimed subject matter as taught by Allon in view of King, in order to protect against data loss (Talagala at [0055]).

8. Claim **40** is rejected under 35 U.S.C. 103(a) as being unpatentable over Allon in view of King, and further in view of **Root et al.** (U.S. Pub. No. 20020050737) ("Root").

With regard to claim **40**, Allon in view of King teaches: The method according to claim 21 (see discussion above).

Allon in view of King does not disclose, but Root teaches:

applied to a network installed in a rail transport system containing traction vehicles and cars as the devices

(i.e., an electropneumatic (EP) train set-up initialization process consists of establishing or confirming the identity of all trainline devices, i.e., locomotives or cars, as well as the position and orientation of all EP equipped locomotives and cars. It also includes assignment of unique network addresses, collection of device information and downloading configuration information (Figure 6; [0047], [0023])).

Based on Allon in view of King and further in view of Root, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was

made, to combine the teaching of Root with the claimed subject matter as taught by Allon in view of King, in order to enhance safety (Root at [0063]).

9. Claims **41 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Allon in view of Root and further in view of King.

With regard to claim **41**, Allon teaches: In an reconfigurable network comprising a plurality of devices, a method for identifying an order of devices in the network thereby enabling determination of relative spatial arrangements among the devices, wherein the network contains a number of nodes interconnected in a sequence, and wherein each of the nodes has a number of connections for interconnecting the nodes and the devices, the method comprising:

configuring the network according to a first hierarchical arrangement of the connections which establishes relationships among the nodes
(i.e., computers in a network are logically linked in a hierarchical tree structure (column 4, lines 16-31). For each of the computers, a link to a computer of lower rank is a link to a parent which is higher up in the tree, and a link to each of computers of higher rank is a link to a child which is lower down in the tree (column 7, lines 1-6; column 4, lines 16-31)).

Allon does not disclose, but Root teaches:

configuring the network according to a first hierarchical arrangement of the connections which establishes relationships among the nodes determinative of the relative spatial arrangements among the devices

(i.e., an electropneumatic (EP) train set-up initialization process consists of establishing or confirming the identity of all trainline devices, i.e., locomotives or cars, as well as the position and orientation of all EP equipped locomotives and cars. It also includes assignment of unique network addresses, collection of device information and downloading configuration information (Figure 6; [0047], [0023])).

Based on Allon in view of Root, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Root with the claimed subject matter as taught by Allon, in order to enhance safety (Root at [0063]).

Allon further teaches:

by:

identifying, by each device in the network in a distributed manner, an order of devices in the network to establish a relationship based on predefined hierarchies of connections for each node

(i.e., computers in a network are logically linked in a hierarchical tree structure (Figure 2A-C; column 4, lines 16-31). Each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). The information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). Each computer

performs steps to build the tree (column 7, lines 28-29). Logical links are generated between the computer and other computers in the network so that a tree structure is formed, the computer being logically linked to one computer higher up the tree and a number of computers lower down the tree (Abstract). The generation of the logical links can be achieved by assigning a rank to each computer, no two computers being assigned the same rank, each computer being logically linked to one computer of lower rank and a number of computers of higher rank to form the tree structure (column 4, lines 42-47)),

comprising, correspondingly for each device in the network:

(i) identifying a corresponding device's associated node

(i.e., each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). Each computer periodically sends an update_up message to its parent and waits for an update_down message (Figures 3A-C; column 8, lines 40-42). If an update_up message arrives from a child, the node responds with an update_down message (column 8, lines 46-47)).

Allon in view of Root does not disclose, but King teaches:

(ii) determining the order of devices by ascertaining, for the corresponding device's associated node, a number of connections and a predefined hierarchy for the connections, which of the number of connections is connected to the corresponding device and a hierarchy for that connection, and which of the

number of connections are still occupied and connected to other nodes and other devices and the hierarchies for those connections

(i.e., in an apparatus including a hierarchy of field replaceable units (FRUs), each FRU in the hierarchy may have a number of subsidiary FRUs, each of a particular type. A FRU includes stored FRU identity data, relating to or describing the FRU itself, and subsidiary FRU data that is indicative of at least the number and type of any subsidiary FRUs that may be immediately below the in the hierarchy. The apparatus is operable to provide a consolidated version of the FRU identity data and subsidiary FRU data stored by the various FRUs in the hierarchy (Figure 6; [0008]). For example, in a system 10, a chassis 15 receives 910 an initial request from a service processor for consolidated FRU data, and forwards 940 the request to each of its subsidiary FRUs including blades 40 (Figure 10; [0108]), which in turn forwards 940 the request for FRU data to its subsidiary FRUs disk unit 515 and RAM 540, each of which responsively returns 960 its FRU data 710 to the blades 40 ([0110]), which in turn returns 960 to chassis 15 the blades' consolidated FRU data 710 which comprises not only the FRU data 710 stored within blade 40 itself but also the FRU data 710 just received 950 from its subsidiary FRUs disk unit 515 and RAM 40 ([0111]));

and

(iii) storing the order of devices in the corresponding device

(i.e., for blade 40 the FRU history information is kept in an EEPROM 518. The FRU history for RAM 540 is stored in SEEPROM 542, while for disk unit 515 the FRU history is handled by disk controller 513 (Figure 5; [0072])).

Based on Allon in view of Root and further in view of King, it would have been obvious to one having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of King with the claimed subject matter as taught by Allon in view of Root, in order to help to isolate a fault in the apparatus (King at [0009]).

Allon further teaches:

such that after identifying the order of devices correspondingly for each device in the network in accordance with (i) - (iii), each device in the network has distributively stored therein the order of devices, enabling each device to ascertain direct and indirect relationships between the devices

(i.e., each of the computers comprises a means for storing information (column 6, lines 14-28) which may be a recording medium (column 16, lines 46-48). The information stored in each computer contains a number of entries, each entry containing information regarding the number of links in the tree separating a particular computer from the computer in which the information is stored, and the rank of the particular computer, logically linked to the computer in which the information is stored, from which the entry was last received (column 5, lines 22-32). Each computer is logically linked to one computer of lower rank and a

number of computers of higher rank to form the tree structure (column 4, lines 42-47)).

Root further teaches:

determinative of the relative spatial arrangements among the devices

(i.e., the EP train set-up initialization process consists of establishing or confirming the identity of all trainline devices, i.e., locomotives or cars, as well as the position and orientation of all EP equipped locomotives and cars. It also includes assignment of unique network addresses, collection of device information and downloading configuration information (Figure 6; [0047], [0023])).

With regard to claim **42**, Allon in view of Root and further in view of King teaches: The method according to claim 41 (see discussion above). Root further teaches:

wherein the network comprises a plurality of computer devices each positioned on a vehicle or car in a transport arrangement

(i.e., an integrated processor module IPM 27 may be integrated with a distributed power DP 14 to communicate via a radio module 33 to other locomotives in the consist and distributed throughout the train (Figures 3-5; [0031], [0030]); a connection between the IPM 27, a brake valve 26 and an electropneumatic control unit 20 is by a common bus which may be an AAR standard LonWork Network wherein each of the modules is a node on the neural network ([0032]); a car ID node 45 is shown as a node on the network and is part of the EP-60 system ([0033])).

Therefore, the limitations of claim 42 are rejected in the analysis of claim 41, and the claim is rejected on that basis.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Isom whose telephone number is (571)270-7203. The examiner can normally be reached on Monday through Friday, 9:30 a.m. to 6:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Hwang can be reached on (571)272-4036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. I./
Examiner, Art Unit 2447
10/20/2010

/Joon H. Hwang/
Supervisory Patent Examiner, Art Unit 2447